

## Dopamine receptor D2

Cat.No. 376 203; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)

### Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Rabbit serum albumin was added for stabilization. For reconstitution add 50 µl H <sub>2</sub> O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C until use.
Applications	<b>WB:</b> 1 : 1000 (AP staining) <b>IP:</b> not tested yet <b>ICC:</b> not tested yet <b>IHC:</b> 1 : 500 <b>IHC-P/FFPE:</b> 1 : 500
Immunogen	Recombinant protein corresponding to AA 222 to 368 from mouse DRD2 (UniProt Id: P61168)
Reactivity	Reacts with: rat (P61169), mouse (P61168). Other species not tested yet.
Specificity	Specific for dopamine receptor D2.

### TO BE USED IN VITRO / FOR RESEARCH ONLY NOT TOXIC, NOT HAZARDOUS, NOT INFECTIOUS, NOT CONTAGIOUS

Dopamine receptors transduce the signal of the neurotransmitter dopamine. Dopamine regulates a variety of functions including locomotor activity, emotion, food intake, hormone secretion, learning and memory. The dysregulation of the dopaminergic system results in several neurological and neuropsychiatric diseases including Parkinson's disease, dystonia, and schizophrenia. Dopamine plays also an important role in the pathogenesis of hypertension by regulating epithelial sodium transport and by interacting with vasoactive hormones.

All five dopamine receptors belong to the 7-transmembrane domain, G protein-coupled receptor superfamily. They have been divided into two subfamilies: Two D1-like receptor subtypes (**D1** and **D5**) couple to the G protein Gs and activate adenylyl cyclase, increasing the intracellular concentration of the second messenger cAMP. The other receptor subtypes belong to the D2-like subfamily (**D2**, **D3**, and **D4**) and are prototypic of G protein-coupled receptors that inhibit adenylyl cyclase. Dopamine receptors can form heteromeric complexes with dopamine receptors from other subtypes or with receptors of other endogenous signaling ligands. These heteromeric complexes have functional properties distinct from the component receptors or are able to modulate the canonical signaling.

**Dopamine receptor D1** is widely distributed throughout the brain with the highest expression in the striatum. In the periphery, the D1 receptor has been detected in the adrenal cortex, kidney and heart. Recently, it was shown that dopamine receptor D1 is expressed in breast cancer, thereby identifying this receptor as a novel therapeutic target in this disease. D1 receptor overexpression is associated with advanced breast cancer and poor prognosis.

**Dopamine Receptor D2** is most abundant in the striatum where it is expressed in medium spiny

neurons. Functionally, the D1 and D2 Receptors have been implicated in the regulation of both locomotor and cognitive functions.

### Selected General References

Expression and therapeutic targeting of dopamine receptor-1 (D1R) in breast cancer.  
Borchert DC, Tong W, Hugo ER, Barnard DF, Fox S, LaSance K, Shaughnessy E, Ben-Jonathan N  
Oncogene (2016) 35(24): 3103-13.

Dopamine receptor heteromeric complexes and their emerging functions.  
George SR, Kern A, Smith RG, Franco R  
Progress in brain research (2014) 211: 183-200.

Dopamine receptor mapping with PET imaging in Parkinson's disease.  
Niccolini F, Su P, Politis M  
Journal of neurology (2014) 261(12): 2251-63.

Dysregulation of dopamine-dependent mechanisms as a determinant of hypertension: studies in dopamine receptor knockout mice.

Zeng C, Armando I, Luo Y, Eisner GM, Felder RA, Jose PA  
American journal of physiology. Heart and circulatory physiology (2008) 294(2): H551-69.

D1 and D2 dopamine-receptor modulation of striatal glutamatergic signaling in striatal medium spiny neurons.  
Surmeier DJ, Ding J, Day M, Wang Z, Shen W  
Trends in neurosciences (2007) 30(5): 228-35.

Insights into the role of dopamine receptor systems in learning and memory.  
El-Ghundi M, O'Dowd BF, George SR  
Reviews in the neurosciences (2007) 18(1): 37-66.

D1 dopamine receptor supersensitivity in the dopamine-depleted striatum animal model of Parkinson's disease.  
Gerfen CR  
The Neuroscientist : a review journal bringing neurobiology, neurology and psychiatry (2003) 9(6): 455-62.

Dopamine receptors: from structure to function.  
Missale C, Nash SR, Robinson SW, Jaber M, Caron MG  
Physiological reviews (1998) 78(1): 189-225.